

IN THE CLAIMS:

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please AMEND claims 1-3, 6-13, 15-25, 52-54, and 57-67 and ADD new claims 68-70 in accordance with the following:

1. (Currently amended) ~~A~~An interactive digital content reproducing apparatus to reproduce interactive digital content, the interactive digital content reproducing apparatus comprising:

a data storage unit, ~~arranged to store data~~ the data storage unit comprising a non-volatile data storage portion; and

a ~~reading~~retrieving unit ~~arranged to read data~~ retrieve interactive digital content, ~~from a storage medium~~ the interactive digital content comprising:

_____ audio/video (AV) data; and

_____ a markup document ~~used to reproduce~~ supporting an interactive function for reproducing the AV data in an interactive manner and comprising a command program, the command program comprising a cookie generation command program;

a ~~presentation engine~~ arranged to control the data storage unit according to a command program included in an input markup document, wherein the presentation engine comprises comprising:

a parser ~~for verifying~~ to:

_____ receive the interactive digital content from the retrieving unit; and

_____ verify a syntax of the markup document of the interactive digital content ;

a document object model (DOM) tree forming unit ~~for receiving~~ to:

_____ receive the markup document from the parser; for interpreting a structure of the markup document; and

~~for extracting~~ extract the command program included ~~in from~~ the markup document by interpreting a structure of the markup document; and

 ~~an interpreter for receiving to receive~~ the extracted command program included in the markup document from the DOM tree forming unit; ~~to control the data storage unit, such that transferring of information and sharing of system parameters related to AV data reproduction between different markup documents are enabled in the content reproducing apparatus;~~

 wherein; according to the interpreter executes the cookie generation command program of the command program; the presentation engine generates to:

 generate a cookie information comprising:

 predetermined target information cookie data to be used by the interactive digital content reproducing apparatus in a subsequent interactive digital content reproducing operation performed in the interactive digital content reproducing apparatus; and

 a domain attribute identifying the interactive digital content reproducing apparatus as a domain; and

 stores store the cookie information in the non-volatile data storage portion of the data storage unit; and

 wherein the data storage unit comprises a non-volatile data storage portion and a volatile data storage portion, where according to cookie storage attribute information in the command program, the presentation engine stores the cookie information in one of the non-volatile data storage portion and the volatile data storage portion.

2. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the ~~input markup document is~~ retrieving unit comprises a reading unit to read the interactive digital content from the a storage medium, or from a remote source, via a network.

3. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the cookie generation command program is written in a script language.

4.-5. (Canceled)

6. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the ~~presentation engine incorporates~~ cookie further comprises content identification

~~information identifying the interactive digital content retrieved by the retrieving unit into the cookie information and stores the cookie information in the data storage unit.~~

7. (Currently amended) The interactive digital content reproducing apparatus of claim 6, wherein the command program of the markup document further comprises a cookie reference command program; and

~~wherein the presentation engine searches~~ interpreter executes the cookie reference command program of the command program to:

search the data storage unit for the a cookie information with the same having a desired content identification information; as input content identification information and
reads the extract cookie information data from any cookie having the desired content identification information that is found in the search.

8. (Currently amended) The interactive digital content reproducing apparatus of claim 1, further comprising: a decoder to decode the AV data; ~~decoding a read content,~~

~~wherein the command program is a command program which commands that predetermined target information be fetched~~ cookie data comprises a state of a system variable of the interactive digital content reproducing apparatus obtained from the decoder; by the interpreter under control of the cookie generation command program commands the cookie information comprising the predetermined target information be generated, and commands the generated cookie information be stored in the data storage unit.

9. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the cookie data comprises data obtained from the markup document by the interpreter under control of the cookie generation command program ~~is a command program which commands that the cookie information comprising predetermined target information be generated and commands the generated cookie information be stored in the data storage unit.~~

10. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the ~~presentation engine receives~~ cookie data from comprises data input by a user; of the interactive digital content reproducing apparatus and the command program is a command program which commands that the cookie information comprising predetermined target

information in the input data from the user be generated, and commands the generated cookie information be stored in the data storage unit.

11. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the command program of the markup document further comprises a cookie reference command program; and

~~where according to the cookie reference command program, wherein the presentation engine searches~~ interpreter executes the cookie reference command program of the command program to:

search the data storage unit for at least one a desired cookie; information item, and

extracts the predetermined target information ~~extract cookie data~~ from the at least one desired cookie information item if the desired cookie is found in the search.

12. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the command program of the markup document further comprises a cookie deletion command program; and

~~where according to the cookie deletion command program, wherein the presentation engine searches~~ interpreter executes the cookie deletion command program of the command program to:

search the data storage unit for at least one a cookie information item to be deleted; and

deletes corresponding ~~delete the cookie information~~ to be deleted if the cookie to be deleted is found in the search.

13. (Currently amended) The interactive digital content reproducing apparatus of claim 1, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information ~~cookie data~~ comprises;

_____ a name identifying of the target information cookie data; and
_____ a value of the target information cookie data.

14. (Canceled)

15. (Currently amended) The interactive digital content reproducing apparatus of claim 6, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information cookie data comprises:

_____ a name identifying of the target information cookie data; and
_____ a value of the target information cookie data.

16. (Currently amended) The interactive digital content reproducing apparatus of claim 7, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information cookie data comprises:

_____ a name identifying of the target information cookie data; and
_____ a value of the target information cookie data.

17. (Currently amended) The interactive digital content reproducing apparatus of claim 8, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information cookie data comprises:

_____ a name identifying of the target information cookie data; and
_____ a value of the target information cookie data.

18. (Currently amended) The interactive digital content reproducing apparatus of claim 9, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information cookie data comprises:

_____ a name identifying of the target information cookie data; and

_____ a value of the target information cookie data.

19. (Currently amended) The interactive digital content reproducing apparatus of claim 10, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information cookie data comprises:

_____ a name identifying of the target information cookie data; and

_____ a value of the target information cookie data.

20. (Currently amended) The interactive digital content reproducing apparatus of claim 11, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information cookie data comprises:

_____ a name identifying of the target information cookie data; and

_____ a value of the target information cookie data.

21. (Currently amended) The interactive digital content reproducing apparatus of claim 12, wherein the cookie information further comprises at least first information defining a content reproducing apparatus using the cookie information, and second information indicating a path attribute identifying a path of a markup document using for which the target information, cookie data is effective; and

wherein the target information cookie data comprises:

_____ a name identifying of the target information cookie data; and

_____ a value of the target information cookie data.

22. (Currently amended) The interactive digital content reproducing apparatus of claim 13, wherein the cookie information further comprises third information an expires attribute defining a duration of the cookie information.

23. (Currently amended) The interactive digital content reproducing apparatus of claim 13, wherein if in storing the cookie, the interpreter overwrites, with the cookie being stored, any cookie information having the stored in the non-volatile data storage portion of the data storage unit that has a same first information and second information domain attribute as the cookie being stored, a same path attribute as the cookie being stored, and the a same name to identify of the target information cookie data as the cookie being stored, information generated according to the cookie generation command program exists in the data storage unit, the presentation engine overwrites the cookie information in the data storage unit with the generated cookie information.

24. (Currently amended) The interactive digital content reproducing apparatus of claim 11, wherein the cookie further comprises content identification identifying the interactive digital content retrieved by the retrieving unit;

wherein, according to the cookie reference command program, the presentation engine interpreter searches the data storage unit for the desired cookie by searching the data storage unit for at least one a cookie information item with predetermined having a desired content identification information; and

wherein the interpreter extracts the predetermined target information cookie data from the desired cookie by extracting cookie data from the at least one any cookie information item having the desired content identification that is found in the search.

25. (Currently amended) The interactive digital content reproducing apparatus of claim 24, wherein the cookie data comprises:

_____ a name of the cookie data; and

_____ a value of the cookie data; and
wherein the ~~presentation engine interpreter~~ searches the data storage unit for the desired cookie by searching the data storage unit for a cookie information having the having a same name to identify of the target information cookie data as in the command program desired cookie.

26-51. (Canceled)

52. (Currently amended) An information storage medium comprising interactive digital content for use reproduction in an interactive digital content reproducing apparatus, including the interactive digital content reproducing apparatus comprising a data storage unit, the data storage unit comprising a non-volatile data storage portion;

wherein the interactive digital content of the information storage medium comprising comprises:

_____ audio/video (AV) data; and

_____ a markup document which reproduces supporting an interactive function for reproducing the AV data in an interactive manner, the markup document and comprising a cookie generation command program; which, when the information storage medium is inserted into the content reproducing apparatus, is performed by the content reproducing apparatus to control the data storage unit included in the content reproducing apparatus, such that transferring of information and sharing of system parameters related to AV data reproduction between different markup documents are enabled in the content reproducing apparatus;

wherein the command program comprises a cookie generation command program, where the cookie generation command program performs control so that controls the interactive digital content reproducing apparatus generates to:

_____ generate a cookie information comprising;

_____ predetermined target information cookie data to be used by the interactive digital content reproducing apparatus in a subsequent interactive digital content reproducing operation performed in the interactive digital content reproducing apparatus; and

_____ a domain attribute identifying the interactive digital content reproducing apparatus as a domain; and

~~_____ stores store the cookie information in the non-volatile data storage portion of the data storage unit; and~~

~~wherein the data storage unit comprises a non-volatile data storage portion and/or a volatile data storage portion, and the cookie generation command program performs a control according to cookie storage attribute information in the cookie generation command program, where the content reproducing apparatus stores the cookie information in one of the non-volatile data storage portion and the volatile data storage portion.~~

53. (Currently amended) The information storage medium of claim 52, wherein the ~~command program~~ cookie further comprises content identification information identifying the interactive digital content of the information storage medium.

54. (Currently amended) The information storage medium of claim 52, wherein the cookie generation command program is written in a script language.

55.-56. (Canceled)

57. (Currently amended) The information storage medium of claim 52, wherein the markup document comprises content identification information identifying the interactive digital content of the information storage medium; and

~~wherein the cookie generation command program performs a control so that controls the interactive digital content reproducing apparatus generates cookie information comprising to:~~

~~_____ obtain the content identification information from the markup document; and~~

~~_____ stores include the content identification information in the cookie, information in the data storage unit.~~

58. (Currently amended) The information storage medium of claim 52, wherein the interactive digital content reproducing apparatus further comprises a decoder to decode the AV data; and

~~wherein the cookie generation command program performs a control so that controls the interactive digital content reproducing apparatus generates to:~~

obtain a state of a system variable of the interactive digital content reproducing apparatus from the decoder; and

include the state of the system variable in the cookie data. ~~information comprising predetermined target information fetched from the decoder decoding the AV data and stores the cookie information in the data storage unit.~~

59. (Currently amended) The information storage medium of claim 52, wherein the cookie generation command program ~~performs a control so that~~ controls the interactive digital content reproducing apparatus generates to:

obtain data from the markup document; and

include the data obtained from the markup document in the cookie data. ~~information comprising predetermined target information in the markup document.~~

60. (Currently amended) The information storage medium of claim 52, wherein the cookie generation command program ~~performs a control so that~~ controls the interactive digital content reproducing apparatus generates to:

obtain data input by a user of the interactive digital content reproducing apparatus; and

include the data input by the user in the cookie data. ~~information comprising predetermined target information in data input from a user and stores the cookie information in the data storage unit.~~

61. (Currently amended) The information storage medium of claim 52, wherein the ~~command program~~ markup document further comprises a cookie reference command program; ~~and~~

wherein ~~where the cookie reference command program performs control so that the interactive digital content reproducing apparatus searches to:~~

search the data storage unit for at least one a desired cookie; ~~information item~~ and

extracts predetermined target information ~~extract cookie data from the at least one desired cookie information item~~ if the desired cookie is found in the search.

62. (Currently amended) The information storage medium of claim 52, wherein the ~~command program~~ markup document further comprises a cookie deletion command program;
and

wherein ~~where the cookie deletion command program performs control so that~~ controls
the interactive digital content reproducing apparatus ~~searches to:~~

search the data storage unit for at least one a cookie information item that
matches the ~~cookie information the cookie deletion command program commands to delete~~ de
deleted; and

deletes ~~delete~~ the at least one cookie information to be deleted if the cookie to be
deleted is found in the search.

63. (Currently amended) The information storage medium of claim 52, wherein the
~~cookie generation command program performs control so that the content reproducing~~
~~apparatus generates cookie information comprising first information defining the content~~
~~reproducing apparatus using the cookie information, second information indicating further~~
comprises a path attribute identifying a path of a markup document using for which the target
information, cookie data is effective; and

wherein the target information, which is cookie data comprises:

a name identifying of the target information cookie data; and

a value of the target information cookie data.

64. (Currently amended) The information storage medium of claim ~~63~~ 52, wherein the
~~cookie generation command program performs control so that the content producing apparatus~~
~~generates the cookie information further comprising third information~~ comprises an expires
attribute defining a duration of the cookie information.

65. (Currently amended) The information storage medium of claim ~~62~~ 61, wherein the
cookie information further comprises ~~first information defining the content reproducing apparatus~~
~~using the cookie information, second information indicating a path attribute identifying a path of a~~
~~markup document using for which the target information, and cookie data is effective;~~

wherein the target information, which is cookie data comprises:

a name identifying of the target information cookie data; and

_____ a value of the target information, cookie data; and
wherein the cookie reference command program performs control controls the interactive digital content reproducing apparatus to:

_____ search the data storage unit for the a cookie information having the that has a same first information domain attribute as the desired cookie, second information a same path attribute as the desired cookie, and the a same name identifying of the target information cookie data as in the desired cookie; reference command program and

_____ to extract the a value of the target information cookie data from any cookie having the same domain attribute as the desired cookie, the same path attribute as the desired cookie, and the same name of the cookie data as the desired cookie that is found in the search.

66. (Currently amended) The information storage medium of claim 62, wherein the cookie information further comprises first information defining the content reproducing apparatus using the cookie information, second information indicating a path attribute identifying a path of a markup document using for which the target information, and cookie data is effective;

wherein the target information, which is cookie data comprises:

_____ a name identifying of the target information cookie data; and

_____ a value of the target information, cookie data; and

wherein the cookie deletion command program performs control controls the interactive digital content reproducing apparatus to

_____ search the data storage unit for the a cookie information having the that has a same first information domain attribute as the cookie to be deleted, second information a same path attribute as the cookie to be deleted, and the a same name identifying of the target information cookie data as in the command program cookie to be deleted; and

_____ to delete the searched any cookie information having the same domain attribute as the cookie to be deleted, the same path attribute as the cookie to be deleted, and the same name of the cookie data as the cookie to be deleted that is found in the search.

67. (Currently amended) A computer-readable computer-readable medium having embodied thereon a program for reproducing interactive digital content in an interactive digital content reproducing apparatus, including a presentation engine and the interactive digital

content reproducing apparatus comprising a data storage unit, the data storage unit comprising a non-volatile data storage portion, the program comprising:

receiving-retrieving interactive digital content comprising:

_____ audio/video (AV) data; and

_____ a markup document supporting an interactive function for reproducing the AV data and comprising a predetermined-cookie generation command program;

parsing the markup document to verify a syntax of the markup document;

extracting the cookie generation command program included in-from the markup document by interpreting a structure of the markup document;-and

controlling the data storage unit included in the content reproducing apparatus according to the extracted command program included in the markup document, such that transferring of information and sharing of system parameters related to AV data reproduction between different markup documents are enabled in the content reproducing apparatus;

wherein the controlling of the data storage unit comprises:

_____ according to the extracted command program, generating a cookie information using the cookie generation command program, the cookie comprising:

_____ cookie data to be used by the interactive digital content reproducing apparatus in a subsequent interactive digital content reproducing operation performed in the interactive digital content reproducing apparatus; and

_____ a domain attribute identifying the interactive digital content reproducing apparatus as a domain; and

storing the generated-cookie information in the non-volatile data storage portion of the data storage unit;-and

wherein in the storing of the generated cookie information, the generated cookie information is stored in one of a non-volatile data storage portion and a volatile data storage portion of the data storage unit according to a cookie storage attribute value in the extracted command program.

68. (New) The interactive digital content reproducing apparatus of claim 1, wherein the retrieving unit comprises a network access unit to receive the interactive digital content through a network.

69. (New) The content reproducing method of claim 8, wherein the system variable is a play state system variable of the interactive digital content reproducing apparatus.

70. (New) The content reproducing method of claim 8, wherein the system variable is a parental level system variable of the interactive digital content reproducing apparatus.